STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7272

Petition of Village of Johnson Water and Light Department for an amendment to a Certificate of Public Good, pursuant to 30 V.S.A. § 248(j), authorizing the permanent installation of an existing temporary substation with a 5 MVA transformer in Johnson, Vermont	))))))

Order entered: 12/10/2009

I. INTRODUCTION

This case involves a petition filed by the Village of Johnson Water and Light Department ("Johnson Electric") requesting an amendment to its Certificate of Public Good ("CPG") under 30 V.S.A. § 248(j) authorizing the permanent installation of an existing temporary substation with a 5 MVA transformer at the Johnson Electric substation located in Johnson, Vermont. In today's Order, we grant Johnson Electric's request.

II. PROCEDURAL HISTORY

On April 24, 2007, the Public Service Board ("Board") issued a CPG in this docket to Johnson Electric to reconstruct the Johnson Electric substation located on the property of Johnson State College in Johnson, Vermont. The CPG authorized the installation and operation of a temporary substation with a 5 MVA transformer next to the substation being rebuilt. The temporary substation was proposed to provide a connection point to Johnson Electric's distribution system during the construction period.

On April 21, 2008, Johnson Electric filed a petition with the Board requesting an amendment to its CPG under 30 V.S.A. § 248(j) authorizing the permanent installation of the existing temporary substation with a 5 MVA transformer at the Johnson Electric substation property. Johnson Electric submitted prefiled testimony addressing only the substantive criteria of Section 248 that the proposed amendment has the potential to significantly impact, and a proposed certificate of public good pursuant to the requirements of 30 V.S.A. § 248(j).

On June 17, 2008, Board staff requested additional information on the petition. On October 7, 2008, Johnson Electric filed supplemental testimony in response to that request.

In a February 4, 2009, memorandum, Board staff determined that it would conduct a site visit in the spring of 2009. On April 9, 2009, Johnson Electric filed a letter indicating that it would be seeking Section 248(j) approval for another proposed project at the substation property and requested that the Board consolidate site visits.[1]

On August 14, 2009, Board staff conducted a site visit at the Johnson Electric substation, for this project and the proposed project by Johnson Electric and the Village of Morrisville Water and Light Department ("Morrisville Electric"), to review the design of the substation ground grid, aesthetic mitigation, and soil erosion prevention measures.

On August 21, 2009, Johnson Electric filed supplemental exhibits that included pictures of the substation ground grids at the Johnson Electric substation property.

Notice of the petition was sent on October 5, 2009, to all entities specified in 30 V.S.A. § 248(a)(4)(c) and other interested parties. The notice stated that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file comments with the Board on or before November 9, 2009. A similar notice of the filing was published in *The Transcript* on October 12, 2009, and October 19, 2009.

In an October 5, 2009, memorandum, the Board requested, if the petition is granted, whether the CPG should include requirements that Johnson Electric file with the Board: (1) an assessment as to whether additional aesthetic mitigation could be installed to screen the substation from Route 100C; and (2) an assessment of further measures to address erosion at the culvert outlets and embankments of the substation.

On October 23, 2009, Johnson Electric filed a letter indicating that a CPG should not include a condition for an aesthetic mitigation or erosion control assessment.[2] Johnson Electric

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1. On June 2, 2009, in Docket 7559, Johnson Electric and Village of Morrisville Water and Light Department ("Morrisville Electric") filed a joint petition with the Board for a CPG authorizing the connection of a 34.5 kV line owned by Morrisville Electric to the Johnson Electric substation.

2. Letter from Joslyn Wilschek, Esq., to Susan M. Hudson, Clerk of the Board, dated October 23, 2009 (Johnson Electric Letter).

stated that additional aesthetic mitigation was not necessary because of the limited view from Route 100C and that it would restrict access to metering equipment. Johnson Electric's letter also identified its current erosion control management measures.

On November 6, 2009, Central Vermont Public Service Corporation ("CVPS") filed a letter recommending no additional screening of Johnson Electric substation, stating that screening would limit access to metering equipment near the substation.[3]

On November 9, 2009, the Vermont Department of Public Service ("Department") filed a letter stating that the petition does not raise a significant issue with respect to the criteria of Section 248 and a certificate of public good should be issued. The Agency of Natural Resources ("ANR") did not submit comments on the petition.

On November 13, 2009, Johnson State College filed a letter in support of the petition, stating that the College was comfortable with the existing erosion control measures taken at the substation and that additional screening would not be beneficial.[4]

III. FINDINGS

1. On April 24, 2007, the Board issued Johnson Electric a CPG to upgrade an existing substation on the property of Johnson State College in Johnson, Vermont. The CPG authorized Johnson Electric to upgrade the existing substation for 12.47 kV operation, expand the fence line, replace an existing transformer, and install a new oil containment system. The CPG also authorized Johnson Electric to install a number of step-down transformers outside the substation fence line. Hastings pf. at 2; exh. Johnson-DH-1.

2. The CPG authorized Johnson Electric to install a temporary 5 MVA transformer inside an enclosed fence to provide service during construction which included the replacement of the main transformer. Johnson Electric anticipated that it would remove the temporary transformer once the existing substation was rebuilt. Hastings pf. at 2.

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3. Letter from Betram H. Stewart III, Utility Forester, to Susan M. Hudson, Clerk of the Board, dated November 6, 2009 (CVPS Letter).

4. Letter from Sharron R. Scott, Dean of Administration, to Susan M. Hudson, Clerk of the Board, dated November 13, 2009.

3. The proposed project will allow for the permanent installation of the existing temporary substation with a 5 MVA transformer in the substation property. The 5 MVA transformer will serve as a back-up to the main substation transformer and be operated in emergency situations. Hastings pf. at 3; Hastings pf. supp. at 2.

4. The main substation with a 5 MVA transformer is in a 45 x 44-foot enclosure. The back-up substation with a 5 MVA transformer is located in a 38 x 41-foot enclosure, approximately 14 feet from the main substation. Hastings pf. at 2; exhs. Johnson-DH-1 and Johnson-DH-7.

5. The proposed 5 MVA transformer for the back-up substation will include an oil-containment system to prevent the accidental release of transformer oil to the environment. The transformer oil will be tested annually. Hastings pf. at 4-5; Hastings pf. supp. at 2.

6. Each substation will be separately grounded with its own ground grids in accordance with National Electrical Safety Code standards. The only electrical connection between the two substations will be the 34.5 kV feed which allows interconnection to the distribution system. Hastings pf. supp. at 3; exh. Johnson-DH-7.

7. There are two 34.5 kV lines into the Johnson Electric substation property. One line is from the CVPS Johnson substation to the main substation and is the feed from which Johnson Electric takes its sub-transmission service. The second line is a Morrisville Electric 34.5 kV feed that comes from its "B22" line. The Morrisville Electric line enters the property near the back-up substation to a step-down transformer, where it is stepped down to 12.5 kV and serves a distribution circuit of Morrisville Electric. Hastings pf. supp. at 3.

8. From November 1 through April 30 annually, Johnson Electric will energize the back-up substation (but isolate it from the distribution system) to allow for quicker transfer of load from the main substation during winter conditions. In cold conditions, the recommended practice requires the transformer to warm up prior to transferring load. Warm up is not necessary in the summer months. Hastings pf. supp. at 2.

9. From May 1 through October 31 annually, the back-up substation will be de-energized, with two open points on the high and low side of the transformer. The open point on the low

side will be protected by a circuit breaker, using a locked-out, tagged-out protocol.[5] High-side fuses will be opened, using a locked-out, tagged-out protocol. In the winter months, only the low-side circuit breaker will be open, using a locked-out, tagged-out protocol. Hastings pf. supp. 2-3.

10. The ring bus design and switch gear utilized to tie the distribution circuits to the temporary transformer allows flexibility in working or replacing substation property equipment without necessitating an outage. Hastings pf. at 3-4; exhs. Johnson-DH-2 and Johnson-DH-3.

11. The proposed project benefits will only accrue from making the 5 MVA transformer an integral part of the existing substation property configuration and cannot be achieved in a more cost-effective manner by efficiency, conservation, or other load management measures. Hastings pf. at 5.

12. The substation access road is narrow, steep, and difficult to access in the winter. There is a steep embankment on the lower side of the access road that drops to the Gihon River. In the event of a catastrophic failure of the main substation transformer, it would be difficult or impossible to bring a trailer-mounted temporary substation or a replacement transformer during the winter months. Hastings pf. at 3.

13. Leaving the temporary transformer in place as a permanent substation property component will allow for the transfer of system load from the main transformer in a matter of minutes, as opposed to hours or days, thereby providing a significant reliability benefit to Johnson Electric customers. This benefit is available in any season, but becomes critical during winter months as Johnson Electric has only one substation and no alternate tie to another distribution system that can serve as a back-up. Hastings pf. at 3.

14. Allowing the temporary 5 MVA transformer to become a permanent component of the substation property would greatly enhance reliability in case of the failure of the main transformer. The ability to transfer load from one transformer to the other will provide greater system stability by preventing the need for outages required for substation maintenance. Hastings pf. at 5-6.

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5. Tagged out refers to a standard safety protocol of placing a tag on the switch that has either been de-energized or energized, so that workers know whether the circuit is live or dead.

15. The CPG approved a project cost of $447,326. The current project cost estimate with the proposed amendment is $592,302. The change in cost estimate is due to increased costs of materials, design, legal and permitting costs, and significant increases in site work from unanticipated site conditions. The increase in costs includes costs associated with making the temporary substation permanent, which are estimated to be approximately $37,000. Hastings pf. at 4; exhs. Johnson-DH-4 and Johnson-DH-5.

16. The proposed project will result in an economic benefit to the State by improving reliability and the performance of the Johnson Electric system. Hastings pf. at 6.

17. The Department filed a determination on November 9, 2009, that the proposed project is consistent with the *Vermont Electric Plan*, in accordance with 30 V.S.A. § 202(f).

18. The Johnson Electric substation is built into a steep wooded bank above the Gihon River Valley. The substation property is well screened from the Johnson State College campus because of natural wooded surroundings and its lower elevation on the steep bank. The substation is located 600 feet away from Route 100C and is approximately 75 feet higher in elevation than the road. There is a short section of the road, which is on a sharp curve, with an open view to the substation through the existing right-of-way. The view for drivers on Route 100C is limited by the height of the substation, the likely speed of the driver, and the curve in the road. Hastings pf. supp. at 4; Johnson Electric letter at 1-2.

19. The existing right-of-way between the Johnson Electric substation and CVPS's Johnson substation is owned by CVPS. CVPS has invested significant resources and effort into the right-of-way to improve reliability in both Lamoille and Orleans Counties. These improvements include the installation of an H-frame structure on its 34.5 kV line before the line enters the Johnson Electric substation property at the main substation. This new H-frame holds primary metering equipment for Johnson Electric and CVPS. Plantings to screen the substation property from Route 100C would limit necessary access to this metering structure. Johnson Electric letter at 2; CVPS letter at 1.

20. The upgrade of the existing substation under the April 24, 2007, CPG included erosion control improvements at the substation property following accepted soil erosion measures. These erosion improvements included applying stone rip rap on steep slopes, installed curtain drains

around the substation property, seeding and mulching disturbed areas, and using silt fencing where needed. Erosion control at the site included installing stone and gravel along the slope and at the outfall of the pre-existing culvert at the substation property. Johnson Electric letter at 2.

21. Johnson Electric continues to monitor the substation property for any signs of erosion in compliance with the condition of its CPG. Johnson Electric will improve any areas of soil erosion on the substation property including grading and smoothing areas of erosion, seeding and mulching or using erosion control matting to establish vegetative cover, and placing an erosion fence at the toe of slopes affected. Johnson will place additional stone rip rap below the outfall of the pre-existing culvert, and place erosion matting on the bank to establish vegetation. Johnson Electric letter at 2.

IV. Discussion and Conclusion

Pursuant to Board Rule 5.408, an amendment to a CPG is required for a substantial change to the approved project. Pursuant to the rule, "a substantial change is a change in the approved proposal that has the potential for significant impact with respect to any of the criteria of Section 248(b) or on the general good of the state under Section 248(a)." We conclude that Johnson Electric's proposed modifications to the Johnson Electric substation do not raise any issues with respect to the criteria of Section 248(b), or the general good under Section 248(a), with the exception of Section 248(b)(2), 248(b)(3) and 248(b)(5).

With regard to Section 248(b)(2) and 248(b)(3) criterion, allowing the temporary substation with 5 MVA transformer to become a permanent back-up component of the substation property would greatly enhance system reliability and stability in case of the failure of the main transformer. In addition given the location of the access to the Johnson Electric substation property, in the event of a catastrophic failure of the main substation transformer, it would be difficult or impossible to bring a trailer-mounted temporary substation or a replacement transformer during the winter months.

In an October 5, 2009, memorandum, the Board requested comments on whether, if the petition is granted, the CPG should include the requirements for Johnson Electric to file with the Board: (1) an assessment as to whether additional aesthetic mitigation could be installed to

screen the substation from Route 100C; and (2) an assessment of further measures to address erosion at the culvert outlets and embankments of the substation.

With regard to additional aesthetic mitigation (Section 248(b)(5) criteria), the Johnson Electric substation property can be viewed from Route 100C through the existing right-of-way leading to the substation. Both Johnson Electric and CVPS stated the reliability benefits of keeping the right-of-way clear of plantings far outweighs the aesthetic benefit that would be gained by screening the substation property from Route 100C. In addition, the view of the substation property from Route 100C is limited by the curve in the road and the height of the substation property above the road. Therefore, we are persuaded that a condition for an aesthetic mitigation assessment is not necessary for the amended CPG.

With regard to erosion control (Section 248(b)(5) criteria), the Johnson Electric substation property is located on a flat area between two embankments: the upper embankment leads up to the Johnson State College Campus and the lower embankment leads down to the Gihon River Valley. Johnson Electric has identified the erosion control measures it has taken at the substation property in compliance with its CPG and its plans to ongoing erosion control. We are persuaded that Johnson Electric is taking adequate erosion control measures and that a condition for an erosion assessment is not necessary for the amended CPG. We conclude that Johnson Electric's plans for ongoing erosion control are adequate and the amended CPG should include a condition that identifies Johnson Electric's planned erosion control measures.

Based upon all of the above evidence, we conclude that the proposed modifications will significantly improve system stability and reliability, will promote the general good of the State of Vermont, and do not raise a significant issue with respect to the substantive criteria of Section 248(b)(2), 248(b)(3), and 248(b)(5). Accordingly, we grant Johnson Electric's motion to amend and issue an amended CPG for the modifications at the Johnson Electric substation.

V. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that:

1. The proposed installation by the Village of Johnson Water and Light Department of a backup substation with 5 MVA transformer at Johnson Electric's Substation property, located in Johnson, Vermont, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248, and a certificate of public good to that effect shall be issued.

2. Construction shall be in accordance with the plans as submitted in these proceedings. Any material deviation from these plans must be approved by the Board.

3. The conditions set forth in the Certificate of Public Good, issued April 24, 2007, shall remain in effect, except as otherwise modified herein.

4. The proposed project shall be constructed and operated in accordance with the National Electric Safety Code requirements.

5. The substation property shall be monitored for erosion and any areas of soil erosion shall be addressed in accordance with accepted soil erosion control measures.

Dated at Montpelier, Vermont this 10th day of December, 2009.

s/ James Volz)
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) PUBLIC SERVICE
)
s/ David C. Coen) BOARD
)
) OF VERMONT
s/ John D. Burke)

OFFICE OF THE CLERK

FILED: December 10, 2009

ATTEST: s/ Susan M. Hudson
Clerk of the Board

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.